

# 5

## WATER SUPPLY RELIABILITY & WATER SHORTAGE CONTINGENCY PLANNING

### 5.1 Water Supply Reliability

#### ***Urban Water Management Planning Act Requirement:***

*10620(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.*

Water supply reliability includes the pumped groundwater from the Central Basin, the availability of the water purchased through the Central Basin Municipal Water District (CBMWD) and the distribution system that makes up the City of Paramount's recycled water supply. Each of these sources is considered to be a reliable water supply to the City. Currently, the City of Paramount is trying to reduce its dependence on imported water from the CBMWD by constructing a new well. Well No. 15 will allow the City of Paramount to pump the full amount allotted through the adjudication agreement.

Since a portion of the City of Paramount's water supply is provided by CBMWD, which in turn is provided through the Metropolitan Water District of Southern California (MWD) and the State Water Project (SWP), the reliability analysis for this water source will be heavily dependent on the reliability analyses of these agencies. Although the City is dependent on these sources to provide a reliable water supply, the City also works with the CBMWD to ensure water reliability in the future. As it is not possible to support the entire water demand through groundwater because of the adjudication agreement, the City of Paramount will continue to work with CBMWD to ensure that the necessary improvements are made to ensure a high quality and reliable source of water.

**Urban Water Management Planning Act Requirement:**

*10631(c)(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.*

Currently, the only sources of potable water that the City of Paramount utilizes are supplier pumped groundwater from the Central Basin and wholesale distributed water through CBMWD. Additional water supplies are obtained by treating wastewater and using it as recycled water for irrigation purposes only.

**Table 5.1.1**  
**Factors Resulting in Inconsistency of Supply**

Water Supply Sources	Legal	Environmental	Water Quality	Climatic	Additional information
Central Basin Groundwater	✓		✓	✓	NA
CBMWD Wholesale Water			✓		NA
Recycled Water			✓		NA

Units: acre-feet per year

### 5.1.1 Central Basin Groundwater

Although it is deemed the most reliable and most cost effective water supply source, several factors affect the reliability of the groundwater supply from the Central Basin. Despite these factors, the City of Paramount still considers optimizing the use of groundwater from the Central Basin a priority in the future.

#### Legal

As the Central Basin is adjudicated, it is subject to legal considerations. The amount of groundwater allowed to be pumped is set at a constant rate by the Adjudication Agreement in Appendix G. Although it is not anticipated that total water supplies from the Central Basin will decrease as a result of the adjudication, it is unlikely that they will increase with increasing demand. Therefore, alternative ways to supplement groundwater must be considered, as pumping more from the Basin will be legally restricted.

### Water Quality

Groundwater quality from the Central Basin is discussed in Section 5.3 below.

### Climatic

Groundwater levels are highly dependent on climate issues such as annual rainfall and average temperature. During dry or wet years, the groundwater levels in the Central Basin are dynamic due to the large number of water retailers that use it as either a sole or majority source of water. Inconsistency in water levels due to drought is a short-term event that can significantly impact the water supply to the City of Paramount. Currently the CBMWD, in conjunction with the City of Paramount and its other member agencies, has several preventative measures in place to mitigate the effects a drought may have on the overall water supply, including maintaining a groundwater recharge system, surplus capacity, and emergency water connections for imported water. For more information on the effects of a drought, see Section 5.4, which identifies the water reliability during a normal, single dry, and multiple dry years.

#### **5.1.2 CBMWD Wholesale Water**

CBMWD identified that its water supply to the City is considered reliable and sufficient to meet demand. However, the reliability of the supply is dependent on the water quality delivered by the SWP to MWD. In general, the SWP quality has been considered good, with delivered water meeting the state threshold requirements. But as seawater intrusion into the Bay-Delta increases, water quality can be diminished. In addition, as water moves through the Bay-Delta, levels of total organic carbon and bromide are likely to increase. Water quality can also be affected by the amount of wastewater that is disposed, as this provides a means for the transportation of salts and pathogens to clean water supplies. To prevent these water quality issues from affecting the overall reliability of supply, water quality analyses are conducted throughout the delivery process and at the water treatment plants to ensure water is safe prior to delivery. Furthermore, state regulatory factors have included biological assessments affecting the amount of water delivered from the Delta to the SWP system to prevent degradation of water quality from the Delta. MWD, CBMWD, and the City of Paramount are diligent in identifying poor water quality and acting immediately to ensure it is treated properly to ensure a clean source of potable water. Please see Section 5.3 for more information regarding water quality.

### 5.1.3 Recycled Water

Recycled Water is treated to the tertiary level, as described in Chapter 4. This water supply is also deemed reliable. Similar to the City of Paramount's potable water supply, water quality issues have the potential to impact reliability and threaten the supply of recycled water.

The process of treating and distributing wastewater and recycled water can be hazardous due to harmful bacteria and waste contents in the water. Due to this, the industry must meet water quality standards set forth by regulating agencies. These standards are prone to change as new issues develop; in response to these changing standards, recycled water treatment plants must adapt to the regulations and modify the process as necessary to ensure that water can continually be delivered to its customers. The recycled water system between the Los Angeles County Sanitation District (LACSD), CBMWD, and the City of Paramount to deliver recycled water ensures that all aspects of distributing safe and reliable recycled water are met, and that high quality recycled water is delivered to its customers for non-potable use. LACSD is also receptive to any changes that must be made in the treatment or distribution process to ensure compliance with all water quality standards and that water is safe for irrigation use.

## 5.2 Water Shortage Contingency Planning

### ***Urban Water Management Planning Act Requirement:***

*10632(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.*

Catastrophic failures that put the water supply at risk include fires and earthquakes that could damage the infrastructure to the water distribution system. In the event of a catastrophic event that prevents the City from obtaining water for distribution, CBMWD implements actions and methods to continue supplying water to customers of its member agencies. Water reserves are available to MWD through Diamond Lake, as well as other surface reservoirs, and it is estimated that MWD could provide full supply for up to six months for all of its service areas following a catastrophic event that disrupts the supply of water. In addition, methods to ensure that water is continually supplied to the customers include stockpiling emergency pipeline repair materials and coordinating with the California Emergency Management Agency (Cal EMA) and Emergency Operations Center (EOC) in the event of a catastrophic disruption of supply.

Any effect seen by the CBMWD during a catastrophic event would impact the water supply to the City. As a result, the City is subject to the actions and rationing of CBMWD. During any kind of catastrophic event that disrupts the water supply, including a regional power outage or an earthquake, the City of Paramount in conjunction with CBMWD and MWD are prepared to continue providing a reliable source of water.

#### **5.2.1 Regional Power Outage**

The City has identified the possibility of a regional power outage and its effect on the water supply. In the event of a regional power outage, the City has backup generators available to ensure that water pumping continues through the wells and pumping stations. In addition, to ensure the imported water supply is made available, MWD has backup generation at its facilities, as well as the ability to employ gravitational flow from regional reservoirs such as Lake Mathews, Castaic Lake, and Silverwood Lake. Mobile generators are also available as needed.

#### **5.2.2 Earthquake**

In the event of a catastrophic earthquake, the City can coordinate with MWD and CBMWD to ensure that any damage lines are repaired as necessary to continue distributing water. In this event, MWD would activate its Emergency Operation Center (EOC) to quickly respond to emergencies and provide emergency services to its customers. The goal of the EOC is to identify leaks and other weaknesses in the system following a catastrophic earthquake, and to quickly isolate the problem in order to reduce wasted water and provide a potable water supply to the population.

With population growth, energy shortages, earthquakes, and the threat of terrorism experienced by California; maintaining the gentle balance between water supply and demand is a complicated task that requires planning and forethought. In the event that a water shortage occurs, simple measures can be implemented to conserve the water supply at a public level. Below, stages are discussed during which various conservation measures will be imposed by the City and CBMWD.

Table 5.2.1 Water Shortage Contingency — Rationing Stages to Address Water Supply Shortages		
Stage No.	Water Supply Conditions	% Shortage
Water Shortage Stage I – Moderate	A Level I Water Supply Shortage exists when the city council determines, in its sole discretion, that due to drought or other water supply conditions, a water supply shortage or threatened shortage exists and a 25% consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.	0-25%
Water Shortage Stage II – Severe	A Level II Water Supply Shortage exists when the city council declares, in its sole discretion, that due to drought or other water supply conditions, a water supply shortage or threatened shortage exists and a 35% consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.	25-35%
Water Shortage Stage III – Critical	A Level III Water Supply Shortage is referred to as a Water Shortage Emergency. A Level III condition exists when the city council declares, in its sole discretion, a water shortage emergency and notifies its residents and businesses that a 50% reduction in consumer demand is necessary to maintain sufficient water supplies for public health and safety, pursuant to Water Code Section 350 et seq.	35-50%

**Urban Water Management Planning Act Requirement:**

*10632(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.*

*10632(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.*

In the event of a significant reduction of water supply, the City has several stages of actions to take and policies to implement to minimize the impacts of water shortage, prepare for an increase in shortage, and attempt to conserve water to prevent further shortage. The City has drafted a Water Conservation Ordinance, which describes the measures to take in the event of a water shortage, including different stages of action corresponding to different levels of drought. The Water Conservation Ordinance can be found in Appendix H. Table 5.2.2 provides an overview of the mandatory prohibitions and the consumption reduction methods the City will implement to compensate for the water shortage.

**Table 5.2.2**  
**Water Shortage Contingency — Mandatory Prohibitions**

<b>Examples of Prohibitions</b>	<b>Stage When Prohibition Becomes Mandatory</b>
Demand reduction program	All Stages
Reduce pressure in water lines	All Stages
Flow restriction	III
Restrict for only priority uses	III
Use prohibitions	All Stages
Voluntary rationing	All Stages
Mandatory rationing	All Stages
Incentives to reduce water consumption	All Stages
Percentage reduction by customer type	All Stages

### Stage 1 Water Supply Shortage (0% - 25% reduction)

The following mandatory water conservation requirements apply during such time that the Stage 1 Water Supply Shortage is in effect:

- **Limits on Watering Days:** Watering or irrigation of lawn, landscape or other vegetated area with potable water is limited to 3 days per week. During the months of November through March, watering or irrigation of lawn, landscape or other vegetated area with potable water is limited to no more than 2 days per week. This provision does not apply to landscape irrigation systems that exclusively use very low-flow drip type irrigation systems when no emitter produces more than 2 gallons of water per hour. This provision does not apply to use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, or for very short periods for the express purpose of adjusting or repairing an irrigation system.
- **Obligation to Fix Leaks, Breaks or Malfunctions:** All leaks, breaks, or other malfunctions in the water user's plumbing, distribution, or irrigation system must be remedied within seventy two (72) hours of observation and/or notification by the City.
- **No Excessive Water Flow or Run-Off:** Watering or irrigation of any lawn, landscape or other vegetated area in a manner that causes or allows excessive water flow or run-off onto an adjoining sidewalk, driveway, street, alley, gutter or ditch must be repaired within 5 days of observation and/or notification by the City.
- **No Washing Down Hard or Paved Surfaces:** Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys is prohibited except when necessary to alleviate safety or sanitary hazards and only by use of a hand-held bucket or similar container, a low-volume high pressure cleaning machine equipped to recycle any water used or a low volume high pressure water broom.
- **Re-Circulating Water Required for Water Fountains and Decorative Water Features:** Operating a water fountain or other decorative water feature that does not use re-circulating water is prohibited.
- **Limits on Washing Vehicles:** Using water to wash or clean a vehicle including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer whether motorized or not is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device.



- **Drinking Water Served Upon Request Only:** Restaurants are prohibited from providing drinking water to any person unless expressly requested by that person.
- **Other Prohibited Uses:**
  - Use only recycled water for construction site dust control, consolidation of backfill.
  - The City Council may implement other prohibited water uses as determined by the City after notice to customers.

**Stage 2 Water Supply Shortage (25% - 35% reduction).**

The following mandatory water conservation requirements, in addition to the Stage 1 actions, apply during such time that the Stage 2 Water Supply Shortage is in effect:

- **Limits on Watering:** Watering or irrigation of lawn, landscape or other vegetated area with potable water is limited to 2 days per week. During the months of November through March, watering or irrigation of lawn, landscape or other vegetated area with potable water is limited to no more than 1 day per week. This provision does not apply to landscape irrigation systems that exclusively use very low-flow drip type irrigation systems when no emitter produces more than 2 gallons of water per hour. This provision does not apply to use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, or for very short periods for the express purpose of adjusting or repairing an irrigation system.
- **Obligation to Fix Leaks, Breaks or Malfunctions:** All leaks, breaks, or other malfunctions in the water user's plumbing, distribution, or irrigation system must be remedied within forty eight (48) hours of observation and/or notification by the City.
- **Other Prohibited Uses:**
  - No filling, cleaning and/or refilling of decorative fountains, ornamental lakes or ponds except to the extent needed to sustain aquatic life, provided that such animals have been actively managed within the water feature prior to declaration of this supply shortage stage.
  - Residential car washing prohibited. Use car washes available with water recycling systems.
  - The filling or topping off of any new or existing residential pools or outdoor spas is prohibited.
  - Planting of new turf grass is prohibited.

- Outdoor evaporative mist coolers are prohibited.
- Main line flushing is allowed for emergency purposes only.
- The City may implement other prohibited water uses as determined by the City Council, after notice to Customers.

### Stage 3 Water Supply Shortage – Emergency Condition (Greater than 35% reduction)

The following mandatory water conservation requirements, in addition to Stage 1 and Stage 2 actions, apply during such time that the Stage 3 Water Supply Shortage is in effect:

**No Watering or Irrigating:** Watering or irrigating of lawn, landscape or other vegetated area with potable water is restricted in accordance with allotments as set forth by the City during a Stage 3 Water Supply Shortage. This restriction does not apply to the use of recycled water or to the following categories of use:

- a. Maintenance of existing landscape necessary for fire protection;
  - b. Maintenance of existing landscape for soil erosion control;
  - c. Maintenance of plant materials identified to be rare or essential to the well-being of protected species;
  - d. Maintenance of landscape within active public parks and playing fields, daycare centers, golf course greens, and school grounds, provided that such irrigation does not exceed 2 days per week;
  - e. Actively irrigated environmental mitigation projects.
- **Obligation to Fix Leaks, Breaks or Malfunctions:** All leaks, breaks, or other malfunctions in the water user's plumbing, distribution, or irrigation system must be remedied within twenty four (24) hours of observation and/or notification by the City.
  - **Other Prohibited Uses:** The City may implement other prohibited water uses as determined by the City Council, after notifying customers.

***Urban Water Management Planning Act Requirement:***  
*10632(f) Penalties or charges for excessive use, where applicable.*

In the case of a water supply shortage, violators of the Water Conservation Ordinance can face a maximum of fine of \$1,000 or imprisonment for no more than 30 days. Table 5.2.3 describes

the penalties associated with single and recurring violations, which are outlined in the ordinance. This includes a first warning, and subsequent fines increasing from \$100, and, on the fourth violation, a notice of intent to install a flow restrictor, with the financial burden of the installation of a flow restrictor lying on the suspected violator of the ordinance.

<b>Table 5.2.3</b>		
<b>Water Shortage Contingency — Penalties and Charges (Stage 1)</b>		
<b>Violation</b>	<b>Stage When Penalty Takes Effect</b>	<b>Penalty or Charge</b>
First Violation of Water Ordinance	Stage 1	Written Warning
Second Violation of Water Ordinance within a 12 Month Period	Stage 1	Written Warning and \$100
Third Violation of Water Ordinance within a 12 Month Period	Stage 1	\$150
Fourth Violation of Water Ordinance within a 12 Month Period	Stage 1	\$200
Fifth and Subsequent Violations of Water Ordinance within a 12 Month Period	Stage 1	\$250 and subject to a water flow restrictor device of approximately 1 gpm

<b>Table 5.2.4</b>		
<b>Water Shortage Contingency — Penalties and Charges (Stages 2 and 3)</b>		
<b>Violation</b>	<b>Stage When Penalty Takes Effect</b>	<b>Penalty or Charge</b>
First Violation of Water Ordinance	Stages 2 and 3	Written Warning and \$100
Second Violation of Water Ordinance within a 12 Month Period	Stages 2 and 3	\$200
Third Violation of Water Ordinance within a 12 Month Period	Stages 2 and 3	\$250
Fourth Violation of Water Ordinance within a 12 Month Period	Stages 2 and 3	\$350
Fifth and Subsequent Violations of Water Ordinance within a 12 Month Period	Stages 2 and 3	\$500, subject to a water flow restrictor device of approximately 1 gpm, and possible termination of service

**Urban Water Management Planning Act Requirement:**

*10632(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f) inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.*

During a water shortage, revenue is expected to decrease due to a reduction in water sales. Furthermore, expenditures would be expected to increase due to the necessary marketing of water conservation methods to reduce water use. In the event that expenditures significantly outweigh revenue, the City has an emergency fund that could be used to provide funds; however, these funds would need to be replenished through additional water sales following any kind of emergency situation. The City also has the authority to increase water use rates during times of drought. The results of this would be two-fold: bringing in additional revenue with similar sales while simultaneously discouraging water waste. These options allow the City to respond quickly to funding issues accompanied with a drought situation.

**Urban Water Management Planning Act Requirement:**

*10632(h) A draft water shortage contingency resolution or ordinance.*

The draft Water Conservation Ordinance, which describes the actions to be taken in case of a water shortage, can be found in Appendix H.

### 5.3 Water Quality

**Urban Water Management Planning Act Requirement:**

*10634 The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects urban water management strategies and supply reliability.*

Each source of water for the City of Paramount presents its own, unique water quality issues. These issues are presented below.

### 5.3.1 Central Basin Groundwater

Groundwater supplied by the Central Basin has historically had good water quality. Specifically to the City of Paramount, contents of Arsenic and Manganese have been detected above the Maximum Contaminant Level (MCL) in the wells, requiring that extra treatment must be completed at the well head to prevent distribution of poor quality water. In addition, the City of Paramount performs water tests to ensure that water quality is met and contaminant and bacteria presence are acceptable and the CBMWD conducts its own water quality tests and monitoring of the wells to ensure that water is acceptable for delivery within its service area, as well as its purveyor's service areas.

#### Arsenic

Arsenic is a toxic chemical that can be found naturally in groundwater; in the United States it is most commonly found in the groundwater of the Southwest. It is commonly known to cause skin cancer.

Historically, the arsenic levels in the groundwater at Well No. 13 had averaged 15 ppb, which was acceptable. In 2006, the Federal MCL for arsenic was lowered to 10 ppb. As a result, the City of Paramount was required to construct additional treatment at Well No. 13 to ensure that arsenic levels would be reduced to a level below the MCL. The new treatment facilities, according to the 2007 Water Master Plan, "include a sodium bisulfite feed system for iron/manganese treatment; a ferric chloride chemical feed system for arsenic reduction; and pressure filters." Water quality issues regarding arsenic have not been noted since the construction of the additional treatment.

#### Manganese

Elevated levels of manganese have been noted at the Well No. 13. Currently, the MCL set by the California Department of Public Health was updated in 2003 to be 0.5 ppm; levels exceeding this have been noted. Although this has been noted in the past, in response to the more stringent arsenic requirements (as described above), the City of Paramount has updated the Treatment system at Well No. 13. As part of this update, the City also included manganese treatment as part of the requirements, to ensure manganese levels will not exceed the MCL. Since the construction, no water quality issues regarding manganese have been noted.

### 5.3.2 CBMWD Wholesale Water

The water quality issues associated with the water supply to the City are the same as quality issues experienced by CBMWD, and similar to those experienced by MWD. MWD has identified threats to the water quality of water supplied through the Colorado River and the State

Water Project. MWD reports that increased salinity and chemicals (i.e. chromium VI, etc.) in the water it is supplied with, as a theoretical water quality event, will cause at most a 15% reduction in supply. However, MWD also noted if concentrations of these contaminants exceed the potable water quality threshold, tactics such as utilizing only small amounts of the affected water and blending it with potable, processed water would reduce the concentration to treatable and acceptable levels. The MWD has stated that it “anticipates no significant reductions in water supply availability from [the Colorado River, State Water Project, and local groundwater] sources due to water quality concerns over the study period.”

The City realizes the importance of constantly assuring that the water it distributes meets potable water stands. Although there are no water quality issues that immediately threaten the supply to the City’s customers, the City maintains knowledge of water quality issues to prevent water of poor quality from being distributed. Following are a description of the most pertinent issues of concern, due to either historically increasing levels (water salinity) or threshold reductions (Chromium VI).

#### Salinity

Increased salinity in the water received from the Colorado River has required MWD to utilize one of the tactics described above: blending SWP water with Colorado River water to reduce the overall salinity concentration. Although this has not caused water supply shortages, if salinity levels continue to increase, additional membrane treatment of water from the Colorado River may be required. This will slow the water purification process down, and could result in up to a 15% reduction in water supply.

To prevent a reduction in supply, MWD has established a Salinity Management Policy, which sets the goal of delivering water with less than 500 mg/L of total dissolved solids (TDS). Generally, this has caused issues with only the Colorado River; the SWP has historically been observed to have significantly lower salinity levels.

#### Chromium VI (Hexavalent Chromium)

While currently there is no drinking water standard for Chromium VI, the OEHHA established a draft PHG for chromium VI in drinking water. The draft proposes a PHG of 0.02 pbb Chromium VI in drinking water. However, the development of the PHG is indicative of future potential standards for drinking water. MWD utilizes analytical testing to ensure that Chromium VI levels do not exceed the current standard. In the event that the Chromium VI standards are reduced, MWD would not have to change its testing method, as the current minimum threshold for its analytical testing is below the proposed concentration threshold.

MWD records of Chromium VI content reveal that, if more stringent goals are implemented, additional treatment of SWP water may be required as levels have historically been noted to exceed the proposed PHG. The draft released by OEHHA on December, 31 2010 states that the PHG of 0.02 ppb is intended to be a “stringent health-protective goal” as opposed to a “maximum ‘safe’ level of chromium 6 in drinking water.” In contrast to SWP water, water from the Colorado River has historically been recorded as generally having undetectable levels of Chromium IV.

Table 5.3.1 indicates the potential impacts of water quality on the City’s water supply, as identified by CBMWD and MWD.

### 5.3.3 Recycled Water

In addition to affecting the potable water supply, similar water quality issues also affect the Recycled water supply. High levels of contaminants (i.e. TDS) in wastewater may require additional treatment to ensure that safe and reliable recycled is delivered to its users. Since recycled water is used primarily for irrigational purposes within the service area of both the City of Paramount and the CBMWD the main effect of poor quality recycled water would be on crop and plant yields. High levels of salinity in the recycled water can be harmful to plant life and could prevent growth. If this were to occur, additional and more expensive wastewater treatment may be necessary.

The LACSD does not anticipate any issues with recycled water quality. The LACSD constantly monitors the water quality of the recycled water sold to end users to ensure that it meets all standards. Furthermore, the stringent salinity requirements, and other water quality standards for potable water being delivered to customers further reduces the likelihood that poor quality recycled water will be delivered. The City of Paramount does not anticipate having any issues with recycled water quality that would be harmful, or in any way cause an increase in potable water use.

Table 5.3.1						
Water Quality — Current and Projected Water Supply Impacts						
Water source	Description of condition	2010	2015	2020	2025	2030
Central Basin	No water quality issues expected	0	0	0	0	0
CBMWD Potable Water	No water quality issues expected	0	0	0	0	0
CBMWD Recycled Water	No water quality issues expected	0	0	0	0	0

Units: acre-feet per year

## 5.4 Drought Planning

### ***Urban Water Management Planning Act Requirement:***

*10631(c)(1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single dry water year, (C) multiple dry water years.*

All potable water supplies are pumped from the Central Basin or provided through the CBMWD as part of MWD and the SWP. The groundwater supply is available based on the ability of the City of Paramount to pump the fully allotted amount through the Central Basin adjudication (the City is expected to be able to pump its fully allotted rights of 5,883 AF by 2015). Since the additional purchased supply is not directly obtained by the City, the determination of reliability is largely be based on CBMWD and MWD analyses to provide a consistent water supply to the City during normal, single dry, and multiple dry years. During these years, the City of Paramount is committed to reducing water demand during times of drought in order to conserve water and improve reliability for future water supplies.

Table 5.4.1 identifies the normal, single dry, and multiple dry water years chosen to represent the water supply from CBMWD:

<b>Table 5.4.1</b>	
<b>Basis of Water Year Data</b>	
<b>Water Year Type</b>	<b>Base Year(s)</b>
<b>Average Water Year</b>	2010
<b>Single-Dry Water Year</b>	2006
<b>Multiple-Dry Water Years</b>	2006-2008

During these years, the percent of supply that was available to the public for use is summarized in Table 5.4.2. Table 5.4.2 represents the total water available through the CBMWD, as reported in the 2010 Urban Water Management Plan.

<b>Table 5.4.2</b>				
<b>Supply Reliability — Historic Conditions</b>				
<b>Average / Normal Water Year</b>	<b>Single Dry Water Year</b>	<b>Multiple Dry Water Years</b>		
		<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
268,173	270,360	270,360	261,100	254,150
Percent of Average/Normal Year:	101%	101%	97%	95%



In the single dry water year, demand increased and therefore more water was supplied to meet the demand due to increased temperatures, evapotranspiration rates, and a longer growing season. Throughout these years, the supply available from the Central Basin was assumed to remain consistent, regardless of the water years. Although this results in using more water than is naturally replenished during these years, water reserves are available to provide a reliable source of water in the event of another single dry year with similar hydrology. The only varying source is water available through the MWD. However, the MWD 2010 UWMP estimated that it would be able to meet all demands during normal, single dry, and multiple dry year scenarios in the next 25 years.

***Urban Water Management Planning Act Requirement:***

*10632(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.*

In the event of a water supply shortage, the City has in place several stages of action to take. These are listed above in the Water Shortage Contingency Plan Section.

***Urban Water Management Planning Act Requirement:***

*10632(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.*

The table on the following page shows the minimum water supply available during the next three years with a multiple year hydrology as defined by the 2006-2008 water years. It can be seen that water supplies for the next three years with multiple dry year hydrology are expected to be able to meet 100% of the demand for the City as identified by its water suppliers, CBMWD and MWD. Table 5.4.3 shows the supplies available to the City of Paramount in the event that the next three years had the same hydrologic conditions as the multiple dry year scenario identified. It should be noted that this assumes that the new Well No. 15 will be online and available to begin pumping the fully allotted rights by the City.

Table 5.4.3				
Supply Reliability — Current Water Sources				
Water supply sources	Average / Normal Water Year Supply	Multiple Dry Water Year (2006)	Multiple Dry Water Year (2007)	Multiple Dry Water Year (2008)
		Year 2011	Year 2012	Year 2013
Central Basin Groundwater	5,883	5,883	5,883	5,883
CBMWD Wholesale Water	3,100	3,140	2,724	2,435
Percent of normal year:	100%	100%	96%	93%

Units: acre-feet per year

Although the supplies are great enough to be met for the next three years in the event of a drought, continuing to consume such quantities from the water supply may outweigh the water replenished through natural processes in the distribution chain. This could potentially result negative consequences, including overdraft conditions of the groundwater basins. To prevent this from happening, the City of Paramount is among the many water retailers in California committed to preserving water supplies. In the event of a single dry or multiple dry year scenarios, the City would reduce demand by implementing the water conservation measures described above in the Water Shortage Contingency Plan Section. This, in conjunction with the demand management measures in place, emphasizes the importance of water conservation to the City of Paramount and its water customers.

Table 5.4.3 does not identify the source of recycled water as a potable water source. Recycled water is accounted for in the following tables to compare the supply and demand during normal, single dry, and multiple dry year scenarios. The data regarding total demand and supply, including recycled water, is documented in Chapters 3 and 4, respectively.

***Urban Water Management Planning Act Requirement:***

*10632(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.*

The City can monitor production at its wells to determine the amount of water being sent into the system. In addition, individual meters on water customers indicate the total water being sold. For water received through CBMWD, monthly deliveries can be monitored as well. In addition,

water meters on customer accounts can indicate the total water demand during water shortages. Trends in this demand can indicate impacts of water use reduction measures. Under normal water supply conditions, potable water production figures are recorded daily. Totals are logged, reported monthly and incorporated into the water supply report.

During a water shortage (Stages I, II, or III) monitoring is increased. Daily production figures are reported to the responsible parties to ensure that water conservation goals are being met. As the severity of the drought increases, the number of parties responsible for the monitoring and enforcement of water distribution figures may increase to include the General Manager and Water Supervisor.

***Urban Water Management Planning Act Requirement:***

*10635(a) Every urban water management supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.*

The following tables, 5.4.4 through 5.4.6, compare the total supply and demand as identified in Chapters 3 and 4 for normal, single dry, and multiple dry years. It can be seen that the supply available to the City, as estimated based on groundwater pumping and as provided in the CBMWD and MWD 2010 Urban Water Management Plans, is greater than the total demand, including during multiple dry year scenarios. However, the City of Paramount is still committed to water conservation in single dry and multiple dry years to help preserve precious water reserves and supplies.

The data provided for the normal, single dry, and multiple dry year scenarios is provided in the supply portion of the CBMWD 2010 Urban Water Management Plan. The plan identifies that during a single dry year scenario, demand may increase by approximately 2% over a normal year. CBMWD identified that supply was sufficient in a single dry year to meet this increased demand. During a multiple dry year, it was identified that the demand may increase by

anywhere from 2% in the first year to 5% in the third year. However, these demand increases may not actually be seen during multiple dry year scenarios due to conservation measures that will be enacted. This potentially will leave the demand consistent with a normal water year. Conservation measures may offset the predicted increase in demand over a multiple dry year period. CBMWD did not identify any reliability issues with delivering water during a single or multiple dry year period, and identified that supply would be sufficient to meet demand.

<b>Table 5.4.4</b>				
<b>Supply and Demand Comparison — Normal Year</b>				
	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
<b>Supply Totals</b>	9,346	9,454	9,563	9,673
<b>Demand Totals</b>	7,815	7,800	7,990	8,185
<b>Difference</b>	1,531	1,654	1,573	1,488
Difference as % Of Supply	16%	17%	16%	15%
Difference as % Of Demand	20%	21%	20%	18%

*Units are in acre-feet per year.*

During a normal year, supply as identified by CBMWD will exceed the demand projected from Chapter 3.

<b>Table 5.4.5</b>				
<b>Supply and Demand Comparison — Single Dry Year</b>				
	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
<b>Supply Totals</b>	9,533	9,643	9,754	9,866
<b>Demand Totals</b>	7,893	7,878	8,070	8,267
<b>Difference</b>	1,640	1,765	1,684	1,600
Difference as % of Supply	17%	18%	17%	16%
Difference as % of Demand	21%	22%	21%	19%

*Units are in acre-feet per year.*

The demand in a single dry year was estimated to increase by approximately 2%. During a single dry year, CBMWD and the City of Paramount expect to have supplies available that exceed this demand increase. In the event of a water shortage, measures outlined in the Water Shortage Contingency Plan will be implemented to prevent overdraft conditions, as well as preserve the water supply.

Table 5.4.6					
Supply and Demand Comparison — Multiple Dry-Year Events					
		2015	2020	2025	2030
Multiple-dry year first year supply	Supply Totals	9,533	9,643	9,754	9,866
	Demand Totals	7,893	7,878	8,070	8,267
	Difference	1,640	1,765	1,684	1,600
	Difference as % of Supply	17%	18%	17%	16%
	Difference as % of Demand	21%	22%	21%	19%
Multiple-dry year second year supply	Supply Totals	8,972	9,076	9,180	9,286
	Demand Totals	8,169	8,154	8,352	8,556
	Difference	803	922	828	730
	Difference as % of Supply	9%	10%	9%	8%
	Difference as % of Demand	10%	11%	10%	9%
Multiple-dry year third year supply	Supply Totals	8,692	8,792	8,894	8,996
	Demand Totals	8,206	8,190	8,390	8,594
	Difference	486	602	504	402
	Difference as % of Supply	6%	7%	6%	4%
	Difference as % of Demand	6%	7%	6%	5%

*Units are in acre-feet per year.*

CBMWD anticipated a supply that could exceed water demand in a multiple dry year period. However, in stages of more severe water shortages, the City may ration supplies as necessary, and implement water conservation measures resulting in up to a 50% water use reduction. This will be performed in situations when water supply is projected to reach dangerously low levels, and an emergency situation is imminent.